Data Sheet
D-API-IP Field_1

FIELD^{IT}

Electro-Pneumantic Converters
Series I/P Signal Converters

Field Mount Units & Accessories

- **Immune to Shock and Vibration:** A low-mass flapper magnet controlled by a powerful, stationary electromagnetic coil provides immunity to shock, vibration, RFI and EMF interference. Complies with CE marking.
- **Small Size & Weight:** The standard metal field mount I/P is 5” high and less than 3” in diameter and weighs less than 1.5 pounds.
- **Hazardous Application at No Extra Premium:** All units FM/CSA certified as Intrinsically safe and Non-incendive. Metal housed units are also Explosion Proof. ATEX approval also available.
- **NEMA 4X Units** available for where harsh environments are the norm.
- **Suitable for Harsh Environments:** Epoxy coated aluminum and Stainless Steel versions available.
- **Multiple Inputs and Outputs:** Standard 4-20 mA/3-15 psi and 1-18, 3-27 and 6-30 psi outputs are available as well as split and compressed ranges.
- **Special Designs Reduce Installation Costs:** Units without booster accept 30-150 psi air supply eliminating secondary regulator in pneumatic valve positioner assemblies. Direct press fit mounting versions available.

Series I/P Signal Converters
Field Mount Units & Accessories

- FM/CSA APPROVED -
- EXPLOSION PROOF - I.S.

CL I, II, III; Div 1,2
Groups B,C,D,E, F,G

ABB

I/P Converters
Field Mount Units and Accessories

The well know Sensycon family of field mount **I/P** converters no part of ABB are compact, rugged instruments with a unique patented signal conversion system which provides immunity to shock, vibration and mounting position. With multiple field mount configurations and construction materials, these units are the obvious choice for remote locations and harsh environments. Available as single units or as complete assemblies with filter-regulator, gauges and mounting brackets, the ABB **I/P** converters are proven, versatile units providing the greatest flexibility and reliable performance. All units are certified as Intrinsically Safe and metal housed versions are also Explosion Proof.

IP Signal Converter with Booster

Engineering Specifications

Input Range	4 - 20 mA	4 - 20 mA
Output Range	3 - 15 psi 1 - 18 psi	3 - 27 psi 6 - 30 psi
Air Capacity	2.4 scfm	2.4 scfm
Air Supply	20 psi (40 psi MAX)	35 psi (40 psi MAX)
Air Consumption	0.095 scfm	0.095 scfm
Accuracy*	≤0.5%	≤1.0%
Hysteresis	≤0.3%	≤0.3%

*Accuracy Less than 0.5% of span, including the combined effects of linearity, hysteresis, and repeatability - defined as independent linearity per SAMA Standard PMC 20.1. 1973 (Overall per ISA 51.1: ±0.75; typically ±0.15%)

Repeatability: (ISA 51.1) ±0.25%; typically ±0.15%

Input Resistance: R_1 approximately 260 Ω

Input Capacitance: Negligible

Output Characteristics: Linear to input current, direct or reverse, according to order.

Resolution Response Time: 0.3 sec with 0.0035 cf of volume
1.5 sec with 0.035 cf of volume

Temperature Limits: -40ºF to +185ºF (-40ºC to +85ºC)
-67ºF (-55ºC) optional

Bottom temperature limit for units approved by ATEX as Flameproof Enclosure
-4ºF (-20ºC) Standard; -67ºF (-55ºC) optional

FM Approvals

Metal housed I/P, Models 22/06-62, 67, 68 & 69
Explosion proof: Class I, Div. 1, Group A - D
Dust Ignition Proof: Class II, III Div.1,Grps E, F & G
Intrinsically Safe: Class I, II, III, Div.1, Groups A,B,C,D,E,F & G

(I_{max} = 125 mA;V_{max} = 40 VDC)

Nonincendive: Class I, Div. 2, Groups A, B & C
Suitable for: Class II, Div. 2, Group G
Suitable for: Class III, Div. 2

Metal housed I/P, Models 22/06-66, 67, 68 & 69
Explosion Proof: Class I, Division 1, Groups B,C,D
Dust Ignition Proof: Class I, II, III, Division 1, Groups B, C, D
Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F & G

Nonincendive: Class I, Division 2, Groups A, B, C
Suitable for: Class II, Division 2, Group G
Suitable for: Class III, Division 2

Military Standards Approved

Metal housed I/P, Models 22/06, -68, -69 & -99
MIL-sTD 167-1 (Ships) - Military Standards Vibration of Ship boad Equipment, Type I

MIL-STD-901C (Navy) - Military Specification Shock Tests, H.I. (High Impact); Shipboard Machinery, Equipment and Systems; Requirements for Grade A, Class I, Type A

CENELEC Approved Units Available.

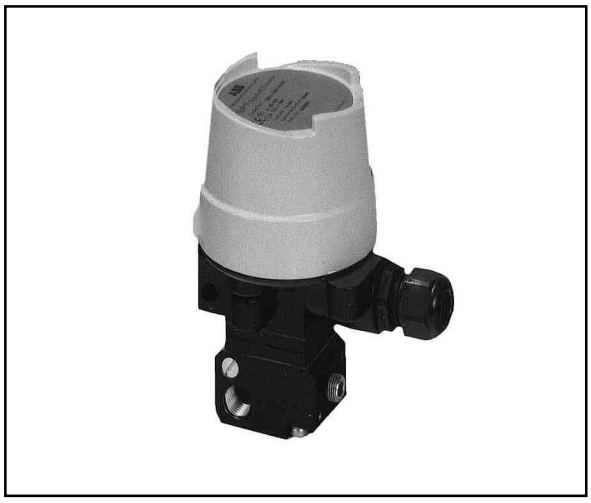
Note: Polycarbonate units obsolete.

Metal-housed Field-mount Units

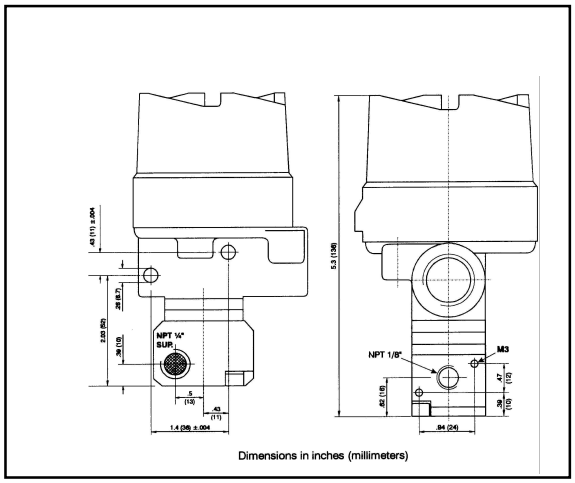
Models 22/06-68, 22/06-36 & 22/06-46
(Stainless Steel)
Models 22/06-69, 22/06-35 & 22/06-45
(Epoxy-coated Aluminum)

NEMA 4X Units also Available

For remote locations and harsh environments, the two field-mount units with metal housings are ideal. Only 5 inches high, these I/P converters are available in stainless steel or in aluminum with a two-part epoxy coating. These models are well suited for hazardous locations, as they are both explosion-proof and intrinsically safe. You can mount them directly on valves and actuators with the 2-inch pipe mounting bracket. When using the angle portion of the mounting bracket, these units can be mounted directly onto the Fisher mounting plate for I/P's and regulators.



Dimensional Drawings



Field-mount Units with Metal Housing

I/P Signal Converter without Booster

Models 22/06-66 and 22/06-67

NEMA 4X Units also Available

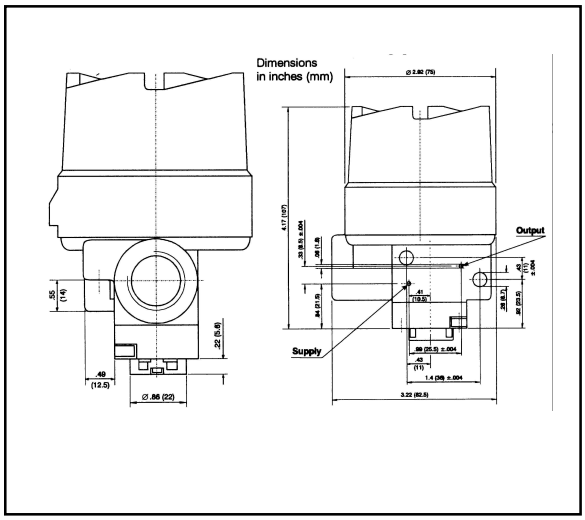
A new variable air supply design for use with pneumatic positioners.

Sensycon introduces an I/P configuration designed specifically for use with pneumatic positioners. The highlight of this unit is its capability to accept a wide range of air supply pressures - from 30 to 150 psi - which eliminates the need for a second regulator. All units are calibrated from stock for an 80 psi supply. Recalibration to other air supply pressures are done at no extra change.

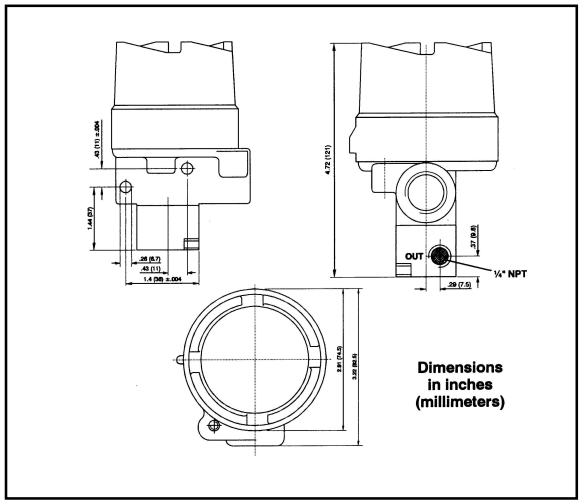
This low volume unit is engineered specifically for close mounting with penumatic positioners and provides 1/4" NPT connections for air supply and output. Integrated air filter is standard.

The basic design of this new unit is the same as that of our standard I/P units, so it has an inherent immunity to vibration and shock, regardless of mounting position. All units are FM and CSA approved as Explosion-proof and Intrinsically Safe. **OEM versions are available. Consult factory for details.**

"Press Fit" Version for custom applications:



Dimensional Drawings



IP Signal Converter without Booster

Engineering Specifications

Input: Signal range: 4-20 mA
Resistance: R_1 approximately 260 Ω
Capacitance: Negligible

Output: Signal range: 3 - 15 psi (Standard)
0.2 - 1 bar (ATEX)
Characteristic: linear, direct

Air Supply: 20 - 145 psi (1.4 - 10 bar)

Air Capacity: .024 scfm (0.05 kg/n) at 1.4 bar (20 psi) air supply
.033 scfm (0.07 kg/n) at 2 bar (29 psi) air supply
.048 scfm (0.10 kg/n) at 4 bar (58 psi) air supply
.076 scfm (0.16 kg/n) at 6 bar (87 psi) air supply
.119 scfm (0.25 kg/n) at 10 bar (145 psi) air supply

Standard Adjustment: 80 psi (5.5 bar)

Air Consumption : Equivalent to air capacity

Transmission Characteristics:
Accuracy: ≤1%
Hysteresis: ≤0.3%
Response threshold: ≤0.1%
Temperature influence: ≤0.1%/K
(0.2%/K from -4ºF to -67ºF)
(0.2%/K from -20ºC to -55ºC)

Air Supply Influence: ≤0.8% /15 psi (1 bar) from 20 - 45 psi (1.4 - 3 bar)
≤0.5% /15 psi (1 bar) from 45 - 145 psi (3 - 10 bar)

Temperature Limits: -40ºF to +180ºF
(-40ºC to +80ºC)
Standard; [-55ºC optional]
Bottom temperature limit for units approved by ATEX as Flameproof Enclosure: -4ºF (20ºC)
[-55ºC optional]

*Accuracy: Less than 0.5% of span, including the combined effects of linearity, hysteresis, and repeatability - defined as independent linearity per SAMA
Standard PMC 20.1. 1973 (Overall per ISA 51.1: ±0.75; typically ±0.15%

Repeatability: (ISA 51.1) ±0.25%; typically ±0.15%

Instrument Air Specifications applicable to all I/P Models

Air Quality: Free of oil, water and dust to DIN/ ISO it73-1 pollution and oil contents according to Class 3 dew point 10K below operating temperature

Purity: Max. particle size 5 micro meter
Max. particle density: 5 mg/3 in.

Note: Before connecting the air pipes, remove dust and other particles by blowing and purging lines.

Ordering Information
FM/CSA and NEMA 4X Models:

Model 22/06-68 and 22/06-69 With Booster (without bracket) - FM & CSA Approved

Model 22/06-68: Stainless Steel		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220668 102780
4-20 mA	1-18 psi	5220668 102782
4-20 mA	3-27 psi	5220668 102781
4-20 mA	6-30 psi	5220668 102784

Model 22/06-69: Aluminum with Epoxy Coating		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220669 102770
4-20 mA	1-18 psi	5220669 102772
4-20 mA	3-27 psi	5220669 102771
4-20 mA	6-30 psi	5220669 102774

Model 22/06-66 and 22/06-67 Without Booster (without bracket) - FM & CSA Approved

Model 22/06-66: Stainless Steel		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220666 102788

Model 22/06-67: Aluminum with Epoxy Coating		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220667 102778

Model 22/06-66 for Press Fit Mounting: Stainless Steel		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220666 653240

Model 22/06-67 for Press Fit Mounting: Aluminum with Epoxy Coating		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	5220667 102711

NEMA 4X Units

NEMA 4X with Booster – ¼" NPT		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	18311-0-182210170
NEMA 4X without Booster – ¼" NPT		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	18312-0-122211270
NEMA 4X without Booster - Press Fit		
Input	**Output**	**Order Number**
4-20 mA	3-15 psi	18312-0-132211270

Pipe Mounting Bracket[1)] (All 316 Stainless Steel) 5229900 272484

Instruction Bulletin *(one copy is supplied at no charge with order)* 42/18-46-3XA

[1)] When using the angle portion of the mounting bracket, the I/P can be mounted directly onto the mounting plate for I/P's and regulators. This mounting bracket is for use with all metal housed I/P units listed above .

Ordering Information
ATEX Approved Models:

1 8 3 1 1 -

SIGNAL CONVERTER WITH BOOSTER — 06 07 08 09 10 11 12

Certifications
- ATEX EEx ia IIC, Field housing unit, Aluminum 38
- ATEX EEx ia IIC, Field housing unit, Stainless Steel 39
- ATEX EEx d IIC, Aluminum 48
- ATEX EEx d IIC, Stainless Steel 49
- BRITISH Standads Ex N for Zone 2, field housing unit, Aluminum 58
- BRITISH Standads Ex N for Zone 2, field housing unit, Stainless Steel 59

Input Signal
- 0-20 mA 1
- 4-20 mA 2
- Other (see supplementary BA No. 503, 504 and 505) 0

Output
- 0.2 - 1 bar 1
- 3-15 psi 2
- Others (see supplementary BA No. 508, 509, 511 and 512) 0

Characteristic
- Direct-action 1
- Reverse-action 2

Unused 0

Ambient Temperature
- -40 to +85ºC 1
- -55 to +85ºC 2

Additional Ordering Information — Catalog Number
- Operation with inflammable gas (only for polyester field housing, intrinsically safe) 480
- Input signal, 4-12 mA 503
- Input signal, 12-20 mA 504
- Output signal, 0.4 - 2 bar 508
- Output signal, 6-30 psi 509
- Output signal, 1-18 psi 511
- Output signal, 3-27 psi 512

Accessories
- Cable gland, brass, M20 x 1.5 thread pressure-proof cable entry, for EEx d model 0319343
- 2” Pipe Mount Bracket for all Field Aluminum and S/S Housing 5229900 272484

Instruction Bulletin (one copy is supplied, at no charge, with order) ..... 42/18-46-3 XA

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The Company’s policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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